Figure 3

[Begin Confidential Information]

[End Confidential Information]

18. The expansion in the demand for wireless data services in recent years is also reflected in the share of total wireless industry revenue that is accounted for by data services. Data from the industry association CTIA show that the share of wireless industry revenues from data services has increased from (essentially) 0 in June 1999 to 31 percent in June 2010.[6]

19. This growth in the demand for wireless data services is due in part to the widespread adoption of smartphones, such as the iPhone, which allow for improved wireless web browsing, video and other data services and were offered with unlimited data plans. For example, data from the FCC indicate that the number of mobile wireless data connections increased from 26.5 million in December 2008 to 71 million in June 2010.[7]

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6. CTIA, "CTIA's Wireless Industry Indices Mid-Year 2010 Results," November 2010, Chart 28, p. 124.
7. FCC, "Internet Access Services: Status as of June 30, 2010," March 2011, Table 1, p. 15. The FCC "requires mobile wireless providers to report the number of subscribers that have a capable device (as discussed above) for which the subscription includes a data plan for transferring, on a monthly basis, either a specified or an unlimited amount of data to and from Internet sites of the subscriber's choice, and *excluding* subscribers whose choice of content is restricted to only

20. Smartphone adoption among AT&T subscribers has been higher than industry-wide totals due in part to the introduction of a portfolio of innovative devices including the iPhone.[8] The rapid adoption of these devices is contributing to the capacity problems faced by AT&T.[9] In December 2010, data revenues accounted for **[Begin Confidential Information] [End Confidential Information]** percent of total service revenues, up from **[Begin Confidential Information] [End Confidential Information]** percent in January 2008.[10] As discussed in detail in William Hogg's declaration, the pace at which AT&T needs to put spectrum into operation is rapidly increasing with the increase in demand in certain major markets. In 2004, AT&T needed to add 10 MHz every 24 months.[11] Today, AT&T's UMTS growth in certain major markets is consuming an additional 10 MHz of spectrum in half the time or less.[12] As discussed in more detail below, AT&T has responded to the dramatic increase in demand with massive capital investments to increase capacity and by introducing tiered pricing for data services, with more intensive data users paying more and less intensive users paying less.

21. But such responses alone are not sufficient to enable AT&T to meet projected demand. Analysts expect growth in wireless data traffic to continue to increase dramatically in coming years. As summarized in Figure 4, the average of three forecasts reported by the FCC indicates that mobile data traffic growth in 2014 will be 35 times the 2009 level. The FCC notes that "[i]n all three forecasts, the trend remains upward in 2014, implying continued growth beyond the forecast period."[13]

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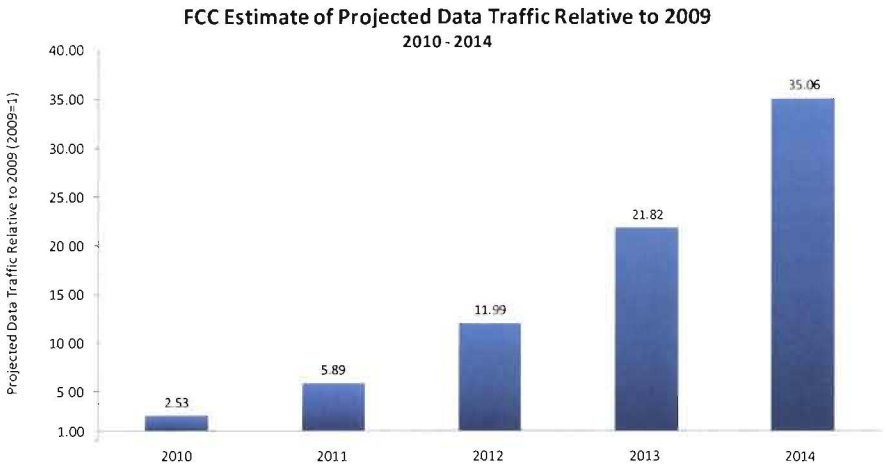
customized for- mobile content (for example, text and multimedia messaging, or the capacity to download ringtones and games)." FCC, "Internet Access Services: Status as of June 30, 2010," March 2011, p. 81.

8. JP Morgan, "U.S. Telecom Services and Towers," January 13, 2011, p. 29.
9. Hogg Declaration, ¶4.
10. AT&T estimates.
11. Hogg Declaration, ¶6.
12. Hogg Declaration, ¶6.
13. FCC, Mobile Broadband: The Benefits of Additional Spectrum, October 2010, p. 9. The FCC cites estimates by "respected industry sources of Cisco Systems, Coda Research and the Yankee Group."

Figure 4



Source: Federal Communications Commission, *Mobile Broodband. The Benefits of Additional Spectrum*, October 2010, exhibit 10, p. 18.

22. This projected growth is driven by expected increases in the utilization of smartphones, connected devices and computers in accessing wireless services and increases in the demand for wireless video services. Credit Suisse forecasts that the number of smartphones in North America is expected to more than triple between 2009 and 2015, increasing from 64 million to 224 million. [14] One of the forecasts cited by the FCC, by Cisco Systems, notes that "[b]ecause mobile video content has much higher bit rates than other mobile content types, mobile video will generate much of the mobile traffic growth through 2015. Of the 6.3 exabytes per month crossing the mobile network by 2015, 4.2 exabytes will be due to video." [15] As this suggests, the share of wireless revenue generated by wireless services is expected to grow and will soon account for the majority of wireless revenue. For example,

14. Credit Suisse, "Convergence 2010", July 15, 2010, p. 6.
15. Cisco, "Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010-2015," p. 8.

Guggenheim Securities projects that "...wireless data revenue will crest the 50% mark in the United States sometime in the 2012 calendar year."[16]

23. Analysts also recognize that the dramatic growth in demand is expected to result in significant congestion of wireless networks.

> Powerful smartphones, fast networks, compelling applications, and user awareness are causing a dramatic surge in the use of mobile-broadband technology. ... But there is a problem. There simply is not enough network capacity to address the emerging demand, and we are already witnessing the effects of network congestion, with many users complaining of slow network operation on some networks. Capacity is based on a number of factors, but foremost is the amount of spectrum available for broadband services. The FCC chairman himself recently stated that he saw the biggest threat to the future of mobile activity in America as the looming spectrum crisis.[17]

24. The FCC and others recognize that wireless carriers face a spectrum shortage as the result of the projected demand for data services. The FCC noted in October 2010 that "even when using conservative assumptions about the market factors that affect spectrum need, it is likely that spectrum will become an increasingly scarce resource in the near term and that freeing spectrum for mobile broadband use over the next five years will entail significant economic benefits."[18] The FCC's analysis validated the need for additional spectrum and the recommendation in the National Broadband Plan for the FCC to make available 500 MHz of new spectrum for wireless services.[19]

B. THE GROWTH IN DEMAND FOR WIRELESS SERVICE IS OUTSTRIPPING AT&T'S ABILITY TO EXPAND CAPACITY AND PROVIDE HIGH QUALITY SERVICE.

25. AT&T has invested heavily in expanding its wireless network capacity in response to increased demand. Over the last three years, AT&T has spent $21.1 billion in upgrading and expanding

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16. Guggenheim Securities, "Telecommunications Services – Wireless Voice & Data Plan Summary Detail Version 1.2", December 15, 2010, p. 3.
17. Rysavy Research, "Mobile Broadband and Capacity Constraints and the Need for Optimization," February 24, 2010, p. 4.
18. FCC, "Mobile Broadband: The Benefits of Additional Spectrum", October 2010, p. 6.
19. FCC, "Mobile Broadband: The Benefits of Additional Spectrum", October 2010, p. 2.

its wireless network.[20] AT&T has upgraded UMTS cell sites with more spectrally efficient HSPA+ and is expanding UMTS and HSPA+ deployment to the remaining GSM-only sites (where spectrum is available).[21] In addition, AT&T is beginning to deploy LTE in areas that account for 80 percent of the population of the United States, a project that it expects to be complete by 2013.[22]

26. AT&T has been spending **[Begin Confidential Information]** **[End Confidential Information]** per year to expand capacity by adding more cell sites (cell splitting) and optimizing existing sites through antenna tilts and other technical modifications.[23] AT&T is also attempting to ease network congestion by shifting data traffic off of its wireless network. For example, AT&T offers free WiFi access to its smartphone customers in 24,000 locations and has installed distributed antenna systems (DAS) in certain locations with high traffic concentration in an effort to offload traffic from its cell site network.[24] However, as discussed below, these alternatives have serious limitations in terms of their ability to move a significant volume of traffic off of AT&T's wireless network.

27. AT&T has also adopted tiered pricing of data services, in which more intensive data users pay more and less intensive users pay less, in an effort to help manage network traffic. AT&T's tiered pricing plan, introduced in June 2010, gave existing data customers the ability to remain on their existing unlimited plans or to opt into one of the new plans to save money.[25]

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20. AT&T Annual Reports, 2010, p. 71, 2008, p. 60.
21. Hogg Declaration, ¶22.
22. Hogg Declaration, ¶27.
23. Hogg Declaration, ¶8.
24. Hogg Declaration, ¶8. AT&T Press Release, "AT&T Announces New Lower-Priced Wireless Data Plans to Make Mobile Internet More Affordable to More People," June 2, 2010.
25. The new tiered pricing plans offer subscribers a choice between AT&T's Data Plus plan, which lowers fees to $15 per month for subscribers that use less than 200 MB and charges an additional $15 per month for each additional 200 MB block accessed in the month, and AT&T's Data Pro plan, which lowers fees to $25 per month for subscribers that use less than 2 GB and charges an additional $10 per month for each additional 1 GB block accessed in the month. When launched, the new plans potentially reduce price for more than 95 percent of data subscribers. Telecommunications Reports, AT&T Deploys Tiered Data Plans, June 15, 2010.

28. Despite these ongoing efforts to expand network capacity, AT&T is still facing difficulties in a number of areas, including many that are important to its ability to succeed on a national basis. Problems with dropped and blocked calls and slow data services faced by subscribers in areas such as New York and San Francisco have been widely reported in the press.[26] Further, because these areas are centers of media attention, poor network performance in these major cities can hurt AT&T's ability to attract customers everywhere.

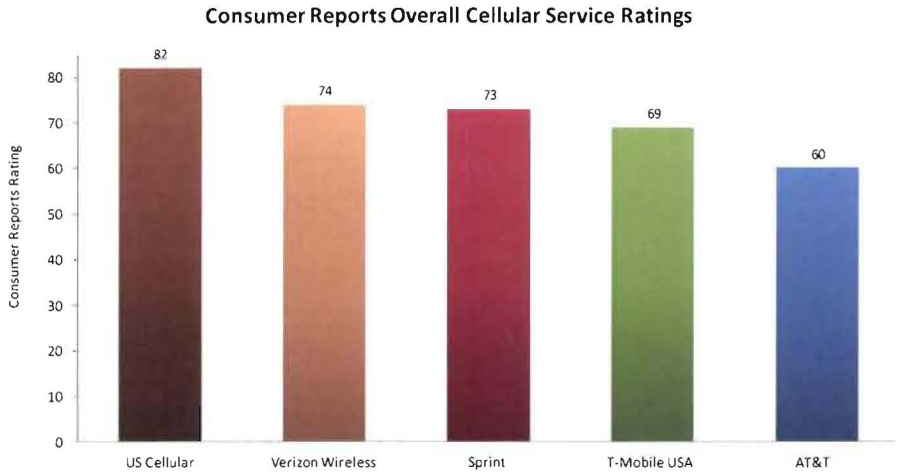
29. Indeed, consumer testing groups and surveys of customer satisfaction typically rate AT&T lower than Verizon and Sprint. Consumer Reports' January 2011 ratings of wireless services, for example, concluded that Verizon Wireless, Sprint and U.S. Cellular had the highest overall consumer satisfaction for wireless service, with AT&T last among the carriers rated. Similar results held in each of the 23 cities evaluated by Consumer Reports.[27]

AT&T Press Release, "AT&T Announced New Lower-Priced Wireless Data Plans to Make Mobile Internet More Affordable to More People," June 2, 2010.

26. New York Times, "Bringing You a Signal You're Already Paying For," April 6, 2010. San Francisco Chronicle, "AT&T's challenge: retaining iPhone users", February 10, 2011.

27. Consumer Reports website, updated January 2011 (subscription required). See also http://www.changewaveresearch.com/articles/2010/05/wireless_service_20100504.html.

Figure 5



Source: Consumer Reports, January 2011.

C. THE ABILITY OF AT&T AND T-MOBILE USA TO RESPOND TO INCREASED DEMAND IS LIMITED BY THEIR OPERATION OF MULTIPLE NETWORKS OVER MULTIPLE SPECTRUM BANDS.

30. In evaluating the rationale for the proposed transaction, it is important to recognize that AT&T and T-Mobile USA mobile operate multiple wireless networks, not just one. Specifically, AT&T operates a GSM network, a UMTS/HSPA/HSPA+ network and is now deploying an LTE network.[28] T-Mobile USA operates a GSM network as well as a UMTS/HSPA/HSPA+ network. These networks and the spectrum bands they operate on are summarized in Table 1 below.

31. AT&T's network footprint covers over 300 million people in the U.S.[29] The AT&T UMTS/HSPA/HSPA+ network currently covers roughly 260 million people and is being expanded to cover 100 percent of AT&T's network footprint.[30] AT&T's GSM network serves roughly **[Begin Confidential Information] [End Confidential Information]** million subscribers and its UMTS/HSPA/HSPA+ network

28. AT&T expects to launch LTE service in mid-2011. http://www.fiercewireless.com/story/ t-launching-lte-mid-2011/2010-09-16
29. Hogg Declaration, ¶18.
30. Hogg Declaration, ¶22.

serves roughly **[Begin Confidential Information]** **[End Confidential Information]** million subscribers.[31] AT&T's current plans call for its LTE network to cover 80 percent of the U.S. population and will expand this footprint to over 97 percent of the population as part of the proposed transaction.[32]

32. T-Mobile USA's network footprint covers roughly 86 percent of the U.S. population.[33] The T-Mobile USA UMTS/HSPA/HSPA+ network currently covers 64 percent of the population.[34] T-Mobile USA's GSM network serves roughly **[Begin Confidential Information]** **[End Confidential Information]** million subscribers and its UMTS/HSPA/HSPA+ network serves roughly **[Begin Confidential Information]** **[End Confidential Information]**million subscribers.[35] T-Mobile USA has no current plans to deploy LTE services.[36]

Table 1

AT&T and T-Mobile USA Networks and Spectrum

Spectrum	AT&T			T-Mobile USA		
Band	GSM	UMTS/HSPA	LTE	GSM	UMTS/HSPA	LTE
700 MHz			UC			
850 MHz	X	X				
1900 MHz	X	X		X		
AWS			UC		X	

X: Active; UC: Under Construction

33. The ability of a carrier to respond to increases in demand is limited due in part to the limited capabilities of existing handsets in accessing new technologies. While handsets are generally backward compatible so a UMTS/HSPA/HSPA+ handset can access GSM services if only GSM services are available in an area, older GSM-only devices cannot access UMTS/HSPA/HSPA+ networks. Thus, carriers

31. Hogg Declaration, ¶¶18, 22.
32. Hogg Declaration, ¶¶27, 59.
33. Larsen Declaration, ¶11.
34. Larsen Declaration, ¶11.
35. Larsen Declaration, ¶11.
36. Larsen Declaration, ¶9.

need to maintain older technologies to continue to serve customers that are slow to switch to a newer technology handset. A carrier's ability to migrate customers in this way depends on the rate at which consumers choose to adopt the new technology, which depends in part on device availability and price, the geographic scope of available service, and other factors.

34. These factors make transitioning between older technologies and newer technologies a lengthy process. For example, the FCC's 2000 Biennial Review required carriers to continue offering analog service until 2008, many years after carriers deployed digital technologies.[37] Similarly, AT&T currently plans to continue to offer its GSM network well into this decade. AT&T and other carriers operating multiple legacy networks have a strong economic incentive to maintain service for such customers in order to preserve their reputations for serving existing customers. As discussed further below, new carriers are less likely than established carriers to face this complication in deploying new generations of wireless networks.

35. Moreover, it is difficult for carriers to respond to the dramatic growth in demand through incremental purchases of spectrum in frequency bands that are compatible with their existing network equipment and consumer devices, since these are likely to be owned and used by another carrier or otherwise not available to be acquired.[38]

D. AT&T AND T-MOBILE USA FACE LIMITED ALTERNATIVES FOR ADDRESSING THE CAPACITY LIMITATIONS EXPECTED OVER THE NEXT SEVERAL YEARS.

36. As mentioned above, AT&T has undertaken large capital investments in recent years in order to upgrade its networks, improve service quality, and deploy "next generation" services. The

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37. http://wireless.fcc.gov/services/index.htm?job=about_cellular_reports&id=cellular. FCC, Second Report and Order In the Matter of Year 2000 Biennial Regulatory Review – Amendment of Part 22 of the Commission's Rules to Modify or Eliminate Outdated Rules Affecting the Cellular Radiotelephone Service and other Commercial Mobile Radio Services, FCC 02-247, September 24, 2002, Appendix A.
38. Moore Declaration, ¶22.

accompanying declarations of AT&T's William Hogg and Deutsche Telecom's Kim Larsen explain how each of their firms faces significant limitations on its ability to expand network capacity due in part to expectations that no newly-licensed spectrum will be available for several years. As they explain, there are limits on the ability of carriers to expand capacity by adding cells to the network and alternative methods addressing capacity constraints such as WiFi and DAS deployments have been ineffective at moving a significant volume of traffic off the network.[39]

37. For example, the technical experts explain that in areas where it is feasible to engage in "cell splitting", there are practical limits on the speed with which new cells can be deployed due to the need to negotiate leases and the time and difficulty in obtaining local permits. These efforts are further complicated by the need to meet a range of other regulatory requirements, such as those related to the National Environmental Policy Act, the National Historic Preservation Act, and the Federal Aviation Administration.[40] In addition, the most efficient cell sites from an engineering and network management perspective can be very difficult to obtain and may not have space to accommodate multiple carriers.[41] Similarly, negotiation of agreements that enable the use of DAS or WiFi systems for moving traffic off existing networks in areas with high traffic density also can be a lengthy process.[42]

38. Alternatives such as WiFi and distributed antenna systems (DAS), while helpful, have also been found to be insufficient to keep up with the large increases in demand.[43] WiFi, for example, can be useful in expanding coverage to areas such as the interior of building not well served by the network. Despite its efforts, AT&T's WiFi sites have not removed enough traffic to relieve AT&T's

39. Hogg Declaration, ¶¶8-9.
40. Hogg Declaration, ¶70.
41. Hogg Declaration, ¶¶68-69.
42. Hogg Declaration ¶73.
43. Hogg Declaration ¶73.

impending capacity constraints.[44] It has experienced difficulties with handing off traffic between WiFi and cellular networks as well as with getting subscribers to use WiFi when it is available.[45]

39. In a recent evaluation of capacity constraints faced by wireless firms, Rysavy Research drew similar conclusions:

> To satisfy this quickly growing demand, especially since it will take five years or more to bring any new spectrum online, operators are using multiple strategies. One is building new cell sites. Spectrum reuse, which cellular technologies accomplish through the use of the same frequencies over and over in different cells is, in fact, the greatest determinant of overall network capacity. But building new sites is an expensive and time-consuming process. Offloading data onto other networks, such as Wi-Fi, is another option, and one that operators are pursuing aggressively. Femto cells could also eventually offload data in buildings, but the femto market has been slow to develop. New technologies, such as WiMAX and LTE, are spectrally more efficient than previous technologies, but not that much more, and wireless technology is approaching theoretical limits of spectral efficiency. Wireless network deployment in the 700 MHz band will provide a boost in network capacity, but it will be 2014 before these networks will be broadly deployed, and, even then, their capacity is quite finite.
>
> All of these approaches, plus eventual new spectrum, will help address the demand. But even then, wireless capacity will remain constrained relative to demand. This is because augmenting capacity is only part of the answer. The other part is more efficient use of spectrum.[46]

40. As Rysavy notes, these difficulties are not likely to be alleviated in the next several years by allocation of new spectrum to wireless service. In November 2010, the FCC began the process that may lead to licensing bands currently used for UHF/VHF television.[47] In the National Broadband Plan the FCC notes that utilization of AWS and PCS spectrum licenses was slowed by the need to relocate incumbent users despite prior FCC Orders to achieve this goal and the multi-year nature of the

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44. Hogg Declaration, ¶73.
45. Hogg Declaration, ¶73.
46. Rysavy Research, "Mobile Broadband Capacity Constraints and the Need for Optimization," February 24, 2010, p. 5.
47. FCC, Notice of Proposed Rulemaking in the Matter of Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF, FCC 10-96, November 30, 2010, ¶1.

reallocation process.[48] According to the FCC, "[t]he process of revisiting or revising spectrum allocations has historically taken 6-13 years. [...] Deploying networks adds still more time."[49]

41. We understand that use of this spectrum cannot occur until (i) there is federal legislation; (ii) the FCC completes a rulemaking to establish the terms of the auction; (iii) the auction occurs; (iv) existing users are cleared from the spectrum; and (v) network equipment is deployed. While the FCC schedule currently calls for the auction of UHF/VHF spectrum to occur in 2013, the spectrum is not scheduled to be cleared of existing users until at least 2015.[50] However, even this time table may prove optimistic. One analyst noted that "...most of the big broadcasters have pushed back against this, and some argue that they could better use the spectrum for mobile video than could the wireless carriers. Whichever way this is decided it's likely to be a battle, and we don't expect a resolution for 3-5 years."[51] [52]

42. The FCC itself has recognized the lengthy time required for making additional spectrum available for wireless services, noting that:

> [a]ttempts to reallocate spectrum under this approach have often been contentious, as licensees possess certain rights and expectations that can make it difficult, in practice, for the FCC to reclaim and re-license that spectrum for another purpose. Contentious spectrum proceedings can be time-consuming, increasing the opportunity cost of delayed reallocation of licenses to other uses.[53]

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48. FCC, Auction 78 Notice, DA-08-767, April 4, 2008, ¶¶10-14. FCC, Connecting America: The National Broadband Plan, Chapter 5 (Spectrum).
49. FCC, Connecting America: The National Broadband Plan, p. 79.
50. FCC, Spectrum Analysis: Options for Broadcast Spectrum, OBI Technical Paper No. 3, June 2010, p. 4.
51. JP Morgan, "U.S. Telecom Services & Towers," January 13, 2011, p. 49.
52. The FCC also has scheduled Auction 92 covering portions of the 700 MHz spectrum for July 2011. However, analysts note that this auction is unlikely to have a significant effect on wireless capacity. According to a JP Morgan report, the auction involves "...the remnants of licenses that either didn't sell in the last 700 MHz auction or were turned back in to the Commission already. Most are rural and have little impact on the overall spectrum market, by our analysis." JP Morgan, "U.S. Telecom Services & Towers," January 13, 2011, p. 48.
53. FCC, Spectrum Analysis: Options for Broadcast Spectrum, OBI Technical Paper No. 3, June 2010,

43. Even the "fast track" evaluation of new spectrum bands proposed by the NTIA and U.S. Department of Commerce in October 2010 does not call for auctions of new spectrum not already scheduled by the FCC before 2014.[54] The plan outlined a framework for licensing an additional 500 MHz of spectrum over a 10-year period. As noted above, it can be several years after licenses are granted before spectrum is put into operation in wireless networks.

44. The spectrum that AT&T has agreed to acquire from Qualcomm will not be able to be put in use to address AT&T's spectrum limitations for at least several years.[55] These licenses are for "unpaired" spectrum that was intended for use in one-way broadcast services, much like traditional television service.[56] Technological advances are expected to allow these spectrum blocks to be used with other spectrum to provide two-way wireless services, but we understand that the technical specifications for use of such unpaired spectrum in LTE are not expected to be completed until late 2011 at the earliest, and AT&T believes that this will not be available for use until 2014 at the earliest.[57] Once completed, equipment manufacturers will need to design, test and build the relevant equipment before the spectrum can be put to use.[58]

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p. 24.

54. NTIA, U.S. Dept. of Commerce, "Plan and Timetable to Make Available 500 Megahertz of Spectrum for Wireless Broadband," October 2010, pp. 23-25; and "An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, 4200-4220 MHz & 4380-4400 MHz," October 2010.
55. See Moore, ¶25. The Qualcomm spectrum assets consist of nationwide licenses for the D Block of lower 700 MHz spectrum, which accounts for 6 MHz of spectrum, as well as 6 MHz of lower 700 MHz spectrum in 5 areas in E block licenses. Description of Transaction, Public Interest Showing and Related Demonstrations, In re Applications of AT&T Mobility Spectrum LLC and Qual*comm Incorporated*, FCC Form 603, January 13, 2011, p. 14. Declaration of Kristin S. Rinne, Senior Vice President – Architecture & Planning, AT&T Services, Inc., In re Applications of AT&T Mobility Spectrum LLC and Qualcomm Incorporated, FCC Form 603, January 12, 2011, ¶8.
56. Description of Transaction, Public Interest Showing and Related Demonstrations, In re Applications of AT&T Mobility Spectrum LLC and Qual*comm Incorporated*, FCC Form 603, January 13, 2011, p. 6.
57. Moore Declaration, ¶25.
58. Declaration of Kristin S. Rinne, Senior Vice President – Architecture & Planning, AT&T Services,

III. THE PROPOSED TRANSACTION WILL BENEFIT CONSUMERS BY EXPANDING CAPACITY AND OUTPUT AND REDUCING OPERATING COSTS.

45. The impact of a merger on consumer welfare depends on its impact on output together with the related price effects – a merger that increases output relative to levels expected in its absence reasonably results in lower price than would otherwise occur. From an economic perspective, antitrust enforcement promotes consumer welfare by blocking mergers that result in a reduction in output and higher prices, while permitting those expected to benefit consumers. This section reviews how the proposed transaction will benefit consumers by enabling the expansion of capacity and output. We also review how the proposed transaction will reduce costs faced by the combined firm and describe how consumers are likely to benefit from these cost reductions.

A. T-MOBILE USA IS A NATURAL PARTNER FOR AT&T AND THE PROPOSED TRANSACTION ACCELERATES AT&T'S ABILITY TO EXPAND CAPACITY AND OUTPUT RELATIVE TO OTHER ALTERNATIVES.

46. As discussed above, AT&T and T-Mobile USA face capacity constraints and high costs of expanding output due to (i) the lack of available new spectrum; (ii) technical and practical limitations on the parties' ability to rapidly expand capacity by constructing new cells or offloading traffic using WiFi and other technologies; and (iii) difficulties in re-allocating existing spectrum through the use of higher capacity "next generation" technologies. Given these constraints, the firms' complementary spectrum licenses and networks enable the firms to expand capacity and output by integrating their operations.

47. AT&T and T-Mobile USA have similar spectrum and network assets. As summarized in Table 1 above, both AT&T and T-Mobile USA offer GSM and UMTS/HSPA/HSPA+ services. Both firms have 1900 Hz and AWS spectrum (with AT&T also utilizing 700 MHz and 850 MHz bands.) We further

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Inc., In re Applications of AT&T Mobility Spectrum LLC and Qualcomm Incorporated, FCC Form 603, January 12, 2011, ¶8.

understand that T-Mobile USA's GSM handsets generally are capable of accessing both the 850 MHz spectrum used by AT&T and the 1900 MHz spectrum used by both firms in their GSM networks.[59] As a result, integration of the two firms' GSM networks is facilitated by having already compatible handsets and network equipment and the proposed transaction avoids many problems associated with integrating non-compatible technologies.

48. AT&T plans to migrate T-Mobile USA's UMTS/HSPA/HSPA+ subscribers to its 850MHz/1900 MHz based UMTS/HSPA/HSPA+ or its LTE network as the capacity-enhancing benefits of network integration are realized. This will free T-Mobile USA's AWS spectrum to be used for AT&T's LTE deployment, one of the two spectrum bands AT&T is using for LTE. Thus, as explained further below, the proposed transaction enables the merged firm to expand capacity relative to the independent operation of the networks in part by using spectrum for GSM more efficiently and repurposing T-Mobile USA's AWS spectrum to provide more efficient LTE services and expand the scope of LTE deployment.

49. As this suggests, the proposed transaction avoids many of the problems that arise in merging networks using different technologies. It has been widely noted, for example, that technology differences were the source of significant problems affecting attempts to integrate Sprint and Nextel following their merger in 2005 and contributed to a decline in Sprint/Nextel's share of wireless subscribers that persisted until the latter part of 2010.[60]

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59. Hogg Declaration, ¶¶18-19.

60. See, for example, Current Analysis, "Sprint Nextel – Business Services US," August 23, 2010, p. 2: "Sprint is very focused on customer service, acknowledging that poor customer service coupled with network performance problems after the Nextel acquisition was a principal reason for customer defections."; Andy Haryanto, "Sprint Nextel Merger Analyzed Using Organization Metaphors," April 12, 2008, p. 2: "The blockbuster merger incurred great expenses and integration problems. To make matters worse, Sprint Nextel was facing technology problems, strong competitors, and cost-conscious consumers. Many customers fled the company frustrated by the customer service quality."

B. THE CAPACITY OF THE MERGED FIRM WILL EXCEED THE COMBINED CAPACITY OF THE TWO FIRMS IF OPERATED INDEPENDENTLY.

50. The complementary nature of AT&T's and T-Mobile USA's networks and spectrum will enable the merged firm to expand capacity and output relative to levels that could be achieved by independent operation of each network. As discussed in William Hogg's Declaration, there are several major factors that contribute to this procompetitive outcome: (i) expanding coverage of AT&T's LTE network and facilitating migration of subscribers from less efficient technologies; (ii) increasing the spectrum available for the provision of service due to the elimination of a duplicative control channel for the firms' GSM networks; (iii) creating a denser network with additional cells that increases aggregate capacity; and (iv) generating "channel pooling" efficiencies which result in expanded capacity from the combined spectrum of the merging firms due to the higher probability of obtaining an open channel when larger channel pools are created.

1. The proposed transaction expands capacity by facilitating the use of more efficient technologies.

51. By combining the firms' GSM subscribers onto a single network, the combined firms will be able to repurpose spectrum to UMTS/HSPA/HSPA+ which can support more traffic. The transaction will also allow the combined firm to migrate T-Mobile USA's UMTS/HSPA/HSPA+ subscribers to either LTE or the combined UMTS network, allowing the AWS spectrum to be repurposed to the more spectrally efficient LTE technology. This "repurposing" expands the number of areas in which AT&T will be able to deploy LTE and increases the amount of spectrum available to provide LTE services. This expands network capacity because, for a given amount of spectrum and network density, LTE is roughly

860 percent more efficient than GSM and about 30-40 percent more efficient than HSPA+ with dual carriers.[61]

52. As described in William Hogg's Declaration, AT&T currently lacks the spectrum to launch LTE in **[Begin Confidential Information]** **[End Confidential Information]** CMAs covering roughly **[Begin Confidential Information]** **[End Confidential Information]** people, and has limited spectrum in an additional **[Begin Confidential Information]** **[End Confidential Information]** CMAs covering roughly **[Begin Confidential Information]** **[End Confidential Information]** people. With the transaction, AT&T will extend its deployment of LTE from covering 80 percent of the U.S. population to covering over 97 percent.[62]

2. Increased spectrum availability from GSM network integration

53. Currently, AT&T and T-Mobile USA each need to dedicate between 4.8 and 10 MHz of spectrum to a control channel for their GSM networks.[63] Among other things, the control channel is used to broadcast a signal from a cell site to handsets in the area, allowing the handsets to choose the site with the best signal.[64] However, the combined firm would require only one channel, freeing 4.8 to 10 MHz for the provision of service. This "new" spectrum can be used to increase network capacity, service quality, or both.[65]

3. Increased capacity due to integration of the cell site networks

54. A wireless network can, within limits, expand capacity by increasing the density of its cell site network.[66] A carrier's ability to do so, however, is limited among other ways by its ability to

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61. Hogg Declaration, ¶25. Carriers here is an engineering term and does not refer to wireless service providers.
62. Hogg Declaration, ¶¶27, 60.
63. Hogg Declaration, ¶48.
64. Harry Newton, Newton's Telecom Dictionary (24th edition), p. 263.
65. Hogg Declaration, ¶48.
66. Cell sites are often referred to as "towers," but may consist of antennae and equipment

place sites in the proper location, which is a time consuming process that typically requires negotiating with building owners or land owners and obtaining the necessary permits from municipal authorities. This process can take years to complete.[67]

55. AT&T plans to integrate about **[Begin Confidential Information]** **[End Confidential Information]** of T-Mobile USA's sites into the combined firm's network.[68] AT&T expects that the benefits from integration of the cell towers can be completed within 9 months of closing in areas of certain markets, with nationwide integration completed within 24 months after closing.[69]

56. Moreover, the merger enables AT&T to retain the locations that are most advantageous to the combined firms, which is expected to result in the retirement of certain AT&T sites as well as T-Mobile USA sites. These improvements in "cell density" resulting from the addition of new cells to the network result in additional capacity in both urban and rural areas and can be particularly valuable in major markets as they run out of spectrum.[70] AT&T anticipates that cell density will increase by roughly 35-45 percent in Chicago, and by 25-35 percent in San Francisco and New York relative to what the two firms would build separately, and further result in improvements in service quality.[71] This integration roughly doubles the traffic that can be carried in the area around any individual site.[72] The improvements in cell density enabled by the merger will enable immediate capacity increases for AT&T and T-Mobile USA's current GSM and UMTS/HSPA/HSPA+ networks, but will also enhance the capacity of the new LTE network as it is rolled out.[73]

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attached to buildings or other structures instead.

67. Hogg Declaration, ¶¶69-72.
68. Hogg Declaration, ¶12.
69. Hogg Declaration, ¶44.
70. Hogg Declaration, ¶47.
71. Hogg Declaration ¶47.
72. Hogg Declaration, ¶46. AT&T plans to install multi-band antennas on the sites to enable them to serve customers of both companies.
73. Hogg Declaration, ¶12.

4. Efficiencies from "channel pooling" to improve the ability to balance periods of peak and slack capacity across existing networks.

57. The combination of AT&T and T-Mobile USA's networks further increases the efficiency by aggregating the two separate blocks of spectrum currently operated by each company into larger channel pools that increase the probability of obtaining an open channel and thus initiating a call or data session.[74] This "channel pooling efficiency" means that the joint operation of two networks will result in fewer blocked calls and can support more subscribers than would be possible if each network were operated independently. AT&T estimates that this efficiency applies most immediately to the firms' GSM networks given the existing capability of T-Mobile USA GSM handsets to access AT&T's spectrum, and will produce a roughly 10-15 percent increase in capacity. However, the same logic applies to integration of the UMTS/HSPA/HSPA+ networks and will be realized as T-Mobile USA's existing UMTS/HSPA/HSPA+ customers migrate to AT&T's network.[75]

58. In sum, the capacity of the merged network will be greater than the sum of the capacity of the two networks if they continued to be operated independently. As discussed further below, the merged company will have strong incentives to fully utilize available capacity given the rapid projected increase in the demand for wireless services and competition from AT&T's rivals which are now deploying LTE and aggressively promoting "all you can eat" packages of voice and data services.[76]

C. THE PROPOSED TRANSACTION WILL BENEFIT AT&T AND T-MOBILE USA SUBSCRIBERS.

59. The proposed transaction will benefit AT&T subscribers by providing increased network capacity, which allows improved quality of voice service. As discussed further below, AT&T's post-merger plan, consistent with our economic analysis, is that increases in network capacity that will result

74. Hogg Declaration, ¶50.
75. Hogg Declaration, ¶¶49-53.
76. Christopher Declaration, ¶8.

from the merger will be used to increase output relative to levels that would prevail in the absence of the proposed transaction.

60. The proposed transaction alleviates capacity constraints in a large number of areas in which AT&T currently or soon will not have enough spectrum to deploy to meet additional demand for UMTS/HSPA/HSPA+ service.[77] This includes roughly **[Begin Confidential Information]** **[End Confidential Information]** CMAs with a combined population of nearly **[Begin Confidential Information]** **[End Confidential Information]** people, with **[Begin Confidential Information]** **[End Confidential Information]** by **[Begin Confidential Information]** **[End Confidential Information]** and **[Begin Confidential Information]** **[End Confidential Information]** in **[Begin Confidential Information]** **[End Confidential Information]** running out of spectrum.[78] As described in William Hogg's declaration, these constraints can result in degradation of service, increases in blocked and dropped calls, and slower broadband data service.[79] In each of these areas, AT&T expects that the proposed transaction will enable them to deploy additional UMTS/HSPA/HSPA+ capacity as a result of the proposed transaction.

61. The proposed transaction will benefit T-Mobile USA subscribers by immediately offering them broader GSM coverage, as well as offering them better access to UMTS/HSPA/HSPA+ in areas where it is not offered by T-Mobile USA.[80]

62. In addition, the proposed transaction will provide T-Mobile USA subscribers with access to LTE. As discussed further below, analysts recognize that many consumers of wireless data services

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77. The widespread nature of capacity constraints faced by AT&T implies that even if there are a few local areas where divestitures are needed to preserve local competition, the benefits of the merger will still be to expand output.
78. Hogg Declaration, ¶37.
79. Hogg Declaration, ¶38.
80. Hogg Declaration, ¶¶57-59.

are likely to drop carriers that do not offer such services, which would decrease T-Mobile USA's future significance as a wireless competitor.

63. The proposed transaction also will provide increased capacity and alleviate spectrum constraints that T-Mobile USA is expected to face as data usage continues to grow.[81] Roughly **[Begin Confidential Information]** **[End Confidential Information]** of T-Mobile USA's markets are expected to reach spectrum exhaust by **[Begin Confidential Information]** **[End Confidential Information]**. Without the transaction, T-Mobile USA estimates that its ability to grow will be significantly limited.[82]

64. T-Mobile USA subscribers would also receive a variety of other benefits, including access to a wider array of handsets without switching carriers. We also understand that T-Mobile USA customers will have the choice of retaining their existing rate plans, ensuring that existing T-Mobile USA subscribers need not face a post-merger price increase.[83]

D. CONSUMERS WILL LIKELY BENEFIT FROM COST SAVINGS EXPECTED TO RESULT FROM THE PROPOSED TRANSACTION

65. AT&T expects to realize cost savings with a present value of more than $39 billion as a result of the proposed transaction. These savings are in addition to the increases in capacity (or equivalently engineering-based reductions in marginal costs) discussed above. As summarized in the Declaration of Rick Moore, AT&T's Senior Vice President of Corporate Development, AT&T projects that these cost savings will reach over $3 billion per year from the third post-merger year forward.[84]

66. Those savings include reductions both in variable and fixed costs. For example, the proposed transaction is expected to result in reductions in network costs, such as those related to cell

81. Larsen Declaration, ¶¶9-10.
82. Larsen Declaration, ¶¶18-19.
83. Moore Declaration, ¶30.
84. Moore Declaration, ¶9.

sites, which often are considered fixed but in the wireless industry are properly considered to be variable, since deployment of cell sites are required to serve additional subscribers and network utilization. AT&T estimates that these savings are significant relative to AT&T's total expenses, and AT&T's success in achieving prior cost savings in prior transactions indicates that these estimated cost savings are credible. The Declaration of Rick Moore explains that AT&T has substantial experience in network integration from recent transactions, including Cingular/AT&T Wireless, SBC/AT&T and AT&T/BellSouth.[85]

67. Reductions in marginal costs create incentives for firms to expand output and reduce prices charged to consumers. Moreover, reductions in "fixed" costs can also benefit consumers, particularly in an industry such as this, which is operating near capacity in many areas and facing high costs of expanding output. For firms considering increasing network capacity, all associated costs – including those typically considered "fixed" in an accounting sense – are properly thought of as variable because they must be incurred in order to serve additional subscribers. Due to the merger-related efficiencies described above, the proposed transaction reduces the "marginal" cost of expanding capacity. Thus, "fixed cost" savings that AT&T expects to realize further reduce the cost of expanding capacity and thus increase the merged firm's incentive to do so.

68. More generally, competition in the wireless industry often is often characterized by a race to deploy new technology and services. Reductions in fixed costs, such as the cost of purchasing new network equipment, will increase firms' incentives to deploy new technologies more rapidly, which will benefit consumers. Even when firms are not yet at capacity, reductions in fixed costs can still provide benefits to consumers and to society. For example, the Report and Recommendations of the Antitrust Modernization Commission notes that "[t]he [antitrust enforcement agencies] should account

85. Moore Declaration, §V.

for the value of fixed-cost efficiencies in assessing the likely competitive effects of a merger. ... Failure to take account of and give proper weight to such fixed costs in evaluating a merger could deprive consumers and the U.S. economy of significant benefits from a pro-competitive merger."[86] Similarly, in prior published work, Prof. Carlton has stressed that government agencies should consider both reductions in fixed as well as variable costs in evaluating mergers:

> [M]any high tech industries have high fixed costs and low marginal costs – and although they develop new products rapidly, their new product cycle is often more than [the window that antitrust authorities are commonly assumed to consider in evaluating mergers]. Gains that lead to lower fixed costs today can encourage research and development, new products and plants in the future. However, by focusing only on efficiencies that influence price over a short period, a government antitrust agency risks failing to credit the future efficiencies that will benefit consumers in the long run. To put it another way, the fixed-cost savings of today are the variable-cost savings in the future for new products.[87]

69. Senior Department of Justice economists have also written about how consumers can benefit from reductions in fixed costs. For example, Kenneth Heyer of the Department of Justice, notes: "[i]mportantly, however, unlike in the case of pure money transfers, fixed cost savings have significant efficiency implications for the economy as a whole." Dr. Heyer also notes that, by freeing up resources for use elsewhere in the economy, fixed cost savings enhance an economy's total welfare: "[t]hese [fixed cost savings] would all be net benefits to the economy – an increase in total welfare. The fact that they do not involve a reduction in the merged firm's marginal cost – and thus do not result in any pass-through to the merged firm's consumers – does not change the fact that the merger is welfare enhancing."[88]

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86. Report and Recommendations of the Antitrust Modernization Commissions, April 2007, p. 58.
87. Dennis W. Carlton, "Does Antitrust Need to be Modernized?" 21 Journal of Economic Perspectives 155 (2007) at 157. Also see Separate Statement of Dennis W. Carlton, Report and Recommendations of the Antitrust Modernization Commission, April 2007, p. 401.
88. Ken Heyer, "Welfare Standards and Merger Analysis: Why Not the Best?" Competition Policy International, Autumn 2006, pp. 37, 40.

70. Just as reductions in fixed costs can increase incentives to innovate, the difficulties faced by AT&T in expanding capacity and output today limit its incentive to innovate. Competition to develop new and innovative products is undertaken with the goal of increasing profits by attracting new subscribers. Thus, firms that face high costs of expanding output have reduced incentives to invest in innovation. As discussed more below, and explained in more detail in John Donovan's accompanying declaration, AT&T has played a leading and on-going role in developing innovations in wireless technologies and services. The merger-related efficiencies describe above will reduce AT&T's costs of expanding and thus increase its incentive to innovate.

71. In sum, the complementary spectrum and network assets held by AT&T and T-Mobile USA enable the merged firm to increase network capacity, or equivalently, lower the cost of expanding capacity and output. As a result, the capacity of the combined firms will exceed the sum of the firms' capacities if they were to continue to operate independently. Merger-related reductions in operating costs further enhance the merged firm's incentive to expand capacity and output.

IV. AT&T AND T-MOBILE USA FACE SIGNIFICANT COMPETITION TODAY AND WILL CONTINUE TO DO SO AFTER THE PROPOSED TRANSACTION.

72. The potential impact of the proposed transaction on competition in the provision of wireless voice and data needs to be evaluated in the context of the rapidly changing nature of the wireless industry. As discussed in Section II, the industry is characterized by extraordinary growth in the demand for wireless data services, ongoing changes in technology available to provide wireless services, and significant limits on the ability of certain carriers to expand output in response to these changes. Both established and newer carriers are having varying degrees of success in adapting to the changing circumstances. These firms also face varying positions with respect to spectrum holdings which

indicates that they face important differences in the marginal cost of expanding output and thus different incentives in the profit-maximizing response to changes in demand and supply conditions.

73. This section provides an overview of competition in the wireless industry today, as well as a brief description of the major providers of wireless service and their recent responses to the changes in the industry. This review illustrates the highly dynamic nature of competition in the wireless industry both today and after the proposed transaction.

74. As a starting point, it is important to recognize that AT&T has been, and is expected to remain, a vigorous competitor, as evidenced by its leading role in introducing new wireless services. AT&T spends close to $1 billion annually on research and development of new technologies, services and applications.[89] AT&T Labs is well recognized as a leading source of innovation and was granted 862 United States patents in 2009.[90] AT&T also recently announced it would open mobile application development facilities in Tel Aviv, Israel, Palo Alto, California and Plano, Texas.[91] In addition, AT&T undertook significant investment and risk in working with Apple in the original iPhone launch.[92]

75. The merged firm will face competition not only from Verizon Wireless and Sprint but also from low cost carriers offering unlimited/non-contract service, principally MetroPCS and Leap/Cricket as well as multi-area and regional competitors such as U.S. Cellular, Cellular South,

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89. Donovan Declaration, ¶18. This figure reflects R&D expenditures for AT&T as a whole.
90. Intellectual Property Owners Association, "Top 300 Organizations Granted U.S. Patents in 2009," available at http://www.ipo.org/AM/Template.cfm?Section=Top_300_Patent_Owners&CONTENTID=25899&TEMPLATE=/CM/ContentDisplay.cfm.
91. Greg Bensinger, "AT&T 'Speed Dating' With App Firms to Gain Edge," *Bloomberg Businessweek*, October 1, 2010.
92. Comments of AT&T Inc. before the FCC, In the Matter of Petition for Rulemaking Regarding Exclusivity Arrangements Between Commercial Wireless Carriers and Handset Manufacturers, RM-11497, February 2, 2009, p. 19. See also, Seeking Alpha, "Cingular Hopes iPhone Will Distract Consumers From Unreliable Voice Service," available at http://seekingalpha.com/article/31344-cingular-hopes-iphone-will-distract-consumers-from-unreliable-voice-service. The article notes that "Cingular/ATT (T) decided to do something risky, giving Apple (AAPL) the freedom to independently develop a completely new device ..."